

## **Rogue Basin Wildfires and Drinking Water Supplies – Impacts and Opportunities**

**January 13, 2021**

8:30 am – 4:00 pm PT

Held Virtually Via Teams

### **Welcome**

**Ashley Arayas, Facilitator and Workshop Lead, The Cadmus Group and Craig Harper, Water Administrator, Medford Water Commission**

*Ashley conducted a poll in which attendees indicated, by using the hand-raising option in Teams, that at least half live or work in the Rogue Basin, and most of these have lived or worked there for at least 5 years.*

*Ashley then reviewed the workshop goals:*

- Increase awareness and understanding of wildfire impacts on water quality and how wildfires, including fires in the urban interface, threaten drinking water supplies.
- Share information, resources, and lessons learned to assist in mitigating contamination of drinking water sources and to identify opportunities for management.
- Educate participants on available tools and resources for pre- and post-fire actions and identify current gaps and needs in the region.
- Strengthen partnerships across the Basin to enhance emergency response, monitoring, mitigation, and restoration efforts.

*Craig Harper:*

Craig provided a brief welcome presentation to the group and shared the goals of the workshop and its relevance and importance, including to Medford Water Commission and the 140,000 residents they serve, and all of the members of the Rogue Drinking Water Partnership, who collectively serve drinking water to over 200,000 people in southern Oregon. Craig emphasized that due to climate change, fire suppression over the past 100 years, lack of forest thinning and other factors, the number of wildfires is increasing. The fires that erupted in September 2020 burned more than 1 million acres in Oregon, and many of the acres were in watersheds that supply drinking water to over 1 million people. He thanked those who helped plan and support the workshop, along with attendees.

**Background: John Vial, Jackson County Director of Roads and Parks and Emergency Operations Center Representative for the County**

*Description of the Almeda and S. Obenchain fires, response, impacts and restoration efforts (no slide presentation)*

John showed a short video produced by the NY Times on the Almeda fire: *How an Oregon Wildfire Became One of the Most Destructive | Visual Investigations - YouTube*, providing context and background for the audience. He then provided his first-hand account, describing the unprecedented wind conditions and fire behavior, making firefighting extremely dangerous and difficult. Embers jumped from wildlands to structures, then from one building to the next igniting homes and businesses in urban areas. Water distribution systems failed causing water shortages in some areas. John also described the heart-breaking loss of homes, including many residents who were underinsured. He estimated that 11,000 to 12,000 people in the area were left homeless, and finding safe shelter was complicated by Covid-19. John described the phases of addressing shelter needs: first, finding immediate shelter for residents with the help of partners including Salvation Army and Red Cross; second, finding interim/transitional housing (in parks and other places using FEMA trailers and RVs; and finally, assisting with long-term shelter recovery as people rebuild their homes. He also described the phased EPA cleanup process to properly dispose of hazardous materials first, then have contractor-led clean-up using county-provided priority lists, and then the last phase of environmental restoration/recovery. John noted that the County and partners had very little time to manage the burned land in preparation for the winter months followed by more major restoration in the spring.

During the question and answer period, John pointed out that one of the biggest issues for the Almeda fire was that many residents did not qualify for FEMA assistance due to their citizenship status. According to John, the mobile home parks “have a large percentage of undocumented residents that are members of our community and work here and contribute to our society”.

The Almeda fire was completely different from the South Obenchain fire. While South Obenchain did threaten communities and burned rural structures, John noted that it was more typical of a wildland fire. Almeda was an urban fire where wind drove embers from one house to the next to the next.

Almost all public water systems were restored except for a few mobile home parks (at the time of the January 13 workshop). John described the response from utility companies as “nothing short of amazing”. He also explained the efforts by cities to test and flush their systems to determine if their water lines were melted or otherwise negatively impacted.

### **Background: Bill Meyers, Rogue Basin Coordinator, Oregon Department of Environmental Quality (DEQ)**

#### *Water quality impacts and coordination*

Bill provided data on the total acreage and number of public water systems impacted by the September 2020 fires. He described general effects of fire on watersheds, which can vary widely depending on the frequency and intensity of the fire events. Impacts include soil becoming hydrophobic, loss of riparian vegetation, surface water warming, and release of nutrients, which can drive algal bloom formation. Specific water quality impacts include a legacy of nutrients and even heavy metals in sediment, increased solids, phosphorus, and dissolved organic carbon. As fires burn, they can also volatilize and transport heavy metals across watersheds; sediment is also a primary vehicle for

transporting metals. Fires also pose challenges to drinking water systems including higher treatment costs and greater risk of disinfection byproduct formation.

Bill showed a series of maps depicting efforts in the basin to move from emergency erosion prevention to longer-term recovery and emphasized the need for actionable science and the importance of the Rogue's existing collaborative partnership. He noted that water quality monitoring, flow gauges, mapping, and ongoing watershed management efforts play an important role in recovery and are an essential part of tracking watershed conditions. Ongoing efforts include assessing metals, fire retardants, PAHs, ash samples, storm water samples, and aquatic ecosystem structural changes. DEQ's toxics program will be collecting and analyzing fire impact data, and water quality monitoring for turbidity and other contaminants of concern in the Basin will be expanded soon.

## **Short-term Threats and Needs**

### **Cara Farr, National Burned Area Emergency Response (BAER) Program Coordinator, U.S. Forest Service**

#### *Post-fire assessments on federal and private forestlands*

Cara provided information on the BAER program, phases of post-fire action, and BAER process details including identifying critical values and assessing threats, evaluating risks, and developing and implementing response strategies. Each BAER critical value and threat combination is evaluated for risk in terms of magnitude of consequences and probability of damage or loss. The BAER process focuses on soil burn severity, geologic hazards, erosion and flooding, hazard trees, and non-native species.

Cara described the similar process for post-wildfire assessments on Bureau of Land Management (BLM) lands (Emergency Stabilization and Rehabilitation or ESR), and on non-federal wildfire-impacted lands (Erosion Threat and Reduction Team or ETART). For all these assessments, the goal is to complete mitigation work quickly to be ahead of post-fire flows. ETART assessments are accessible from Oregon Department of Forestry; Local USFS and BLM offices can furnish reports for assessments of federal lands.

### **Evan Hofeld, Regional Engineer, Oregon Health Authority (OHA) Drinking Water Services**

#### *Overview of drinking water system impacts from fires*

Evan provided details about distribution system impacts including melted pipes, smoke, ash, soot pulled into pipes, plastic contaminants melting into water, and benzene contamination. He also provided an overview of: watershed impacts focusing on flooding and erosion (along with resultant turbidity issues); nutrients and organics (posing increased risk of disinfection byproduct formation and cyanotoxins from

harmful algae blooms); inorganics and unknown toxins; and pathogens. He discussed the challenge of total organic carbon and disinfection byproduct precursors to surface water treatment, as well as risks to drinking water infrastructure from fires. Evan also discussed fire retardants and firefighting foams, including the commonly used retardant, Phoschek, which can potentially contribute excess nutrients (phosphorus) to waterways. There was no evidence that firefighters used foams containing PFAS, PFOA, or PFOS.

In conclusion, Evan highlighted some important post-fire steps: communicate with local emergency managers early and often; be on the lookout for hazardous conditions; watch for landslides, logjams, etc.; appropriately manage road culverts; conduct post-fire watershed monitoring; and keep regulators informed if there any issues at public water systems.

### **Steve Lambert, Jackson County Parks Manager**

#### *Local perspective on aspects of restoration along the Bear Creek Greenway*

Steve focused his talk on local response to the fire impacting the Bear Creek Greenway. He provided an overview of the impacts including: 11 miles of greenway burned; 550 acres of public land burned; infrastructure damage including bridges, melted culverts, benches, and fences; and natural resource damage including burned trees and understory, severe riparian impacts, and post-fire concerns about invasive species.

Steve noted that luckily, existing partnerships enabled the County to quickly establish a work group that could take fast and decisive actions. However, the process of assessing where to start was difficult, and they had to acknowledge limitations (e.g., greenway stabilization would not occur all at once). While trees that posed an immediate hazard needed to be removed, they decided to leave the vast majority of burned trees standing to serve as habitat. Given erosion and weed concerns, they aerially applied a seed mix to the burned areas.

Steve concluded that they are lucky to have strong partners in the watershed working together, and a community that wants to help. He noted that it was important to share information with the public to address their concerns (e.g., County's tree removal work). Steve also emphasized the important functions of the FEMA hazard mitigation program.

### **Gregory Stabach, Rogue Valley Council of Governments, Drone Images and Found Objects from the Alameda Fire**

Greg Stabach shared a brief photo story of objects found in the forest once the understory had been cleared by wildfire. There were car bodies, barrels, drums, and gas tanks. The burned land also revealed streams and springs, some previously unknown. Drone imagery was useful for identifying potential risks (erosion, dumps, rubble) and for prioritizing restoration areas.

## **Mid-term Threats and Needs**

### **Dan Sobota, Oregon DEQ**

#### *- Harmful Algal Blooms after Wildfires: Monitoring and Remote Sensing Strategies*

The Oregon DEQ has been monitoring CyanoHABs for 20 years, and over the last 16, there have been numerous advisories. Remote sensing has identified several current algal blooms across the Rogue Basin. Excessive growth of specific algal species capable of producing toxins has led to increasing public health and ecosystem health concerns across the state, with impacts on drinking water, recreational opportunities, agricultural production, fisheries, local economies, and aquatic habitats. Dan's presentation discussed how wildfires may affect freshwater CyanoHABs in burned areas, what DEQ and other agencies should do to address wildfire impacts on CyanoHABs, and tools and resources available to predict and track CyanoHABs.

CyanoHABs are caused by high nutrient inputs, warm temperatures, slow-moving, stagnant, or stratified water, and alteration of aquatic food webs. Potential wildfire impacts include: increased sediment erosion and ash runoff; runoff of urban and wildland fire-fighting chemicals; loss of riparian shade; and runoff and decomposition of organic debris. As vegetation regrows, instream flow and water levels in lakes and reservoirs may decrease. Wildfire can also exacerbate the long-term effects of climate change. Loss of riparian shade results in higher temperatures that promote nutrients/cyanobacterial growth.

Dan shared a number of mitigation and restoration tools including:

- stormwater best management practices (BMPs) to reduce nutrient loading;
- BMPs to stabilize streambanks and shorelines;
- technical assistance and/or grants including SWCDs and OSU Extension for agriculture and family forestlands, and watershed councils, NRCS, OHA and DWPP for drinking water source areas;
- water quality monitoring to measure sediment, nutrients, and temperature based on prioritization.

He also noted that Oregon DEQ's harmful algal blooms mapping project is planned for release later in 2021. In response to a question about lag-time on satellite imagery, Dan shared that DEQ currently has about 5 years of data and is looking to release it every 2-3 days.

### **Ben Klayman, Medford Water Commission, Water Quality and Treatment Director and Jason Canady, Grants Pass Public Works Director**

*Water utility perspective from Medford Water Commission and City of Grants Pass*

Ben and Jason gave first-hand accounts of working in the basin after the fire. Ben said the job of the Medford Water Commission (MWC) is to provide safe and reliable drinking water to the municipal communities throughout the area. MWC supplies water to the city of Medford and sells water to several other communities in the upper/middle Rogue area including Talent and Phoenix. The stage had been set for extreme fire conditions: unprecedented winds; extreme fire danger, Jackson County in extreme drought; and risk of power outages, particularly at the water treatment plant.

Ben described that the fire approached MWC's Big Butte Springs on the first night of the South Obenchain fire, while the Almeda fire was raging in the valley. During the fires, many MWC employees were working while having been evacuated from their homes. MWC was on high alert and struggled to keep adequate supplies flowing in the valley, and needed to get prioritization from fire-fighting agencies to keep the springs operational. The risks to drinking water were not new – MWC addresses these on a daily basis, but the fires exacerbated the potential for elevated contamination risks, including turbidity, pH and alkalinity, temperature, organic carbon and nutrients, disinfection byproducts, HABs, metal concentrations, and VOCs. Fortunately, MWC already had new online monitoring capabilities to address the need for real-time data. Their updated source water monitoring plan addressed important aspects such as frequency, locations, and parameters.

Ben provided a graphic showing how MWC had been building resiliency into their operations. While their 1968 plant was built to treat clean mountain water from the Rogue River, they have since developed a multi-barrier approach, including ozone, over the last 50 years, and it is working well and providing benefits. In the next 3-5 years, MWC plans to expand the capacity of the treatment plant.

Jason offered perspectives from Grants Pass and emphasized that collaboration is key to ensuring safe drinking water. He provided the example of shared resources, such as online instrumentation, that assist all utilities in monitoring potential threats. Development of enhanced tools is needed, such as models to predict time-of-travel in local waterways; real-time, online data sharing; and *affordable* instrumentation to provide accurate data without the need for slow and expensive lab testing. He stated that all partners will likely be better prepared for the next event, which they hope will never happen.

**Meghan Montgomery, Agricultural Resource Conservationist, and Clint Nichols, Forest and Riparian Resource Conservationist, Jackson County Soil and Water Conservation District (SWCD)**

*Mid-Term Threats and Needs: Almeda and South Obenchain Fires*

**Clint– Almeda Fire**

Clint described the impacts of the Almeda Fire and mid-term recovery. He noted the path of the fire followed riparian corridors. He described the impacts including “soils that looked like they’d been baked in a kiln,” erosion, invasive weed regrowth (particularly blackberry), damaged infrastructure, and bulldozer lines. They focused their outreach on riparian areas since the path of the fire followed riparian corridors. In

particular, this included land adjacent to tributaries that has more private ownership. Blackberry and other riparian vegetation carried the fire; burned areas were limited to land adjacent to riparian zones. Surprisingly, there were few issues on the private lands where the SWCD had already worked. For example, there was no evidence of hydrophobic soils. Impacts observed included localized damage to stream banks and confluences, and large amounts of needle and leaf loss. The SWCD placed straw on targeted areas and is seeding for future soil stabilization.

A lesson learned from the 2019 Penninger fire was the rapid regrowth of blackberry, so the SWCD set the goal of reducing blackberry presence in the Almeda fire footprint for future restoration and management. They treated 30 acres of public and 37 acres of private riparian land, in rural and urban settings. A \$33,000 grant to the Rogue Valley Council of Governments funded herbicide applicators – the SWCD referred private landowners as they met them. Damaged infrastructure remains. Insurance coverage, USDA Farm Service Agency funds, and Oregon Watershed Enhancement Board and Oregon Water Resource Development program grants are needed to repair fences, irrigation systems and culverts. Bulldozer lines are limited to two properties and the SWCD has recommended seeding and straw.

### **Meghan – South Obenchain Fire**

Meghan discussed outreach for private land damages, fire impacts and BMPs, infrastructure recovery, and ongoing needs and anticipated challenges due to the South Obenchain fire. She said the context was different from the Almeda fire, as there were not as many already-established partnerships. The SWCD reached out to organizations that could offer support. The SWCD also sent an outreach letter to all private landowners affected by the fire. A key aspect of this outreach effort was sharing the endorsement of a local landowner and trusted leader who was also impacted by the fire.

Meghan described fire recovery efforts focusing on five aspects of impacts observed:

1. Fire severity was patchy, with mixed severity across the landscape. SWCD recommended wildlife recovery seed mix, dry land pasture mix, mulch for soil protection, and strategic replanting of trees and shrubs.
2. Steep slopes and sensitive soils. SWCD dropped seed mixes to establish vegetation on high-severity burn areas and steep slopes, and to establish competition against invasive species; cut hazard trees and laid them across the slope to catch sediment and debris; and placed straw and wood chip mulch to protect the soil surface.
3. Disturbance from fire suppression activities, such as bulldozer lines, especially around perennial or ephemeral streams. They were not contoured to the slope; many crossed streams or ephemeral drainages. SWCD treated these areas with seeding, straw mulch covering, and installed or enhanced waterbars across roads or bulldozer lines.
4. Infrastructure recovery has involved pasture and rangeland restoration by re-seeding burned areas and monitoring for establishment; forest restoration with merchantable conifer species and managing regrowth of oak, manzanita and madrone. The

built infrastructure includes fencing replacement. There is a huge gap in insurance support for rebuilding so SWCD is trying to be supportive.

5. Invasive species: Blackberry was a smaller component of this fire than Alameda, but is still present throughout waterways, irrigation and pastures. Invasive annual grasses include Medusahead, hedgehog, dogtail, and bromes. Yellow star thistle and other herbaceous invasive plants are also a threat. SWCD provided herbicide treatment for blackberry, and seeding for competition.

Ongoing needs include dealing with challenges of variable burn severity, patchy public/private ownership; lack of a cohesive burn severity/impacts assessment; and individual landowner issues. SWCD has been coordinating with the Bureau of Land Management and across neighborhoods.

## **Long-term Threats and Needs**

### **Marko Bey, Executive Director, Lomakatsi Restoration Project**

#### *Adaptive Management of Restoration Sites*

Marko explained that the Lomakatsi Restoration is a community-based organization. Its goals are to develop and implement proactive, community-based ecological restoration projects; provide vocational, on-the-job training and employment in ecological restoration; educate students and the community about ecological restoration; and facilitate partnerships and build community capacity to accomplish landscape scale restoration. In partnership with the Ashland Forest Resiliency, the City of Ashland, the US Forest Service and the Nature Conservancy, the Lomakatsi Restoration Project has worked for 15 years to reduce risk of severe wildfire in the watershed and to protect water quality, older forests, wildlife, people, property, and quality of life.

Marko said the Rogue Basin forests and woodlands are among the most at-risk in the Pacific Northwest, and are an important resource to protect since these lands supply most of the communities' drinking water. A primary threat is severe fire, and an important challenge is managing ecological anchors and density around the watershed. Lessons learned and implementation strategies adjusted due to the fires included: piling logs more than 15 feet from the tree bole (trunk); creating a staged separate entry for prescribed burning of radially thinned piles; cutting out logs that wick to the tree; moving piles as needed; and working with those organizing prescribed burns during the pre-burn operations brief. Other protective practices employed included legacy tree raking (raking around large old trees) to protect these as important soil anchors. Scaling up to the Rogue Basin Strategy requires treating more than a million acres – [approximately 50,000 acres per year for 20 years](#) – a huge undertaking.

During the question-and-answer period, a participant asked how stocking rates are determined. Marko responded that on public land they use stand reconstruction studies and fire scars, and stocking rates are based on position, slope, and northern spotted owl cover.

### **Aaron Borisenko, Water Quality Monitoring Manager, Oregon DEQ**

*Long-term monitoring, including cyanotoxins, and evaluating water quality data for changes in risk over time*

Aaron presented long term monitoring considerations (defined as “from 6 months to 2 years post-fire with a medium level of urgency”) to participants.

- Extent, severity, and type of wildfire damage
- What do we know about water quality impacts from previous studies?
- What do initial water quality data collection results show?
- What are potential long-term impacts to beneficial uses of water?
- What data collection and analytical resources do we have at our disposal?
- What are the information needs, and who needs it?
- What other factors should be considered, like weather effects?
- We can’t forget about potential impacts to groundwater.

Longer term parameters of concern include turbidity, TOC/DOC, nutrients, metals, sediments, water temperature, HABs (cyanotoxins), biomonitoring, flow, and toxics – 500 chemicals from nine chemical groups, including current-use pesticides, consumer use products, combustion byproducts, dioxins and furans, flame retardants, industrial chemicals, legacy pesticides, PCBs and metals. The DEQ Rogue Basin Toxics Summary was released in December 2020 and serves as an excellent baseline:

<https://www.oregon.gov/deq/wq/Documents/wqtoxicsRogueReportF.pdf> A podcast on the report is available at

<https://www.ijpr.org/podcast/the-jefferson-exchange>.

Aaron presented some important questions to the audience, including: What existing monitoring programs can be used to answer questions about long-term impacts of wildfires on water quality? What baseline data do we have at water monitoring stations located in wildfire-damaged zones? How do we work together to fill information gaps? Can we add needed indicators to existing programs?

Aaron then displayed a map showing locations of stream monitoring and toxics monitoring to help inform the 2020 wildfire impacts. He provided specific examples of partnerships to share data, deployment of new sondes, and potential for future collaborations in priority areas hit by fires. Aaron also shared details about ongoing cyanotoxin monitoring and VOC sampling assistance for smaller public water facilities.

This monitoring has been accomplished through a partnership between OHA, DEQ, and public water systems, including those in the Rogue Basin.

Aaron emphasized the need to identify and fill information gaps, once long-term questions are clearly defined and coordinated. This requires staying connected with monitoring partners and identifying ways to collaborate to share data in a timely fashion. He shared the example of USGS's Cascade Collaboration Call, Post 2020 Wildfire Science Team as a model for this effort.

Aaron wished everyone a speedy recovery from the 2020 wildfires and expressed the importance of documenting what we learn. He also emphasized the need to maintain collaborative networks and consider environmental justice issues, reminding participants of the example provided earlier in the day of fire victims unable to receive assistance because they are not citizens.

## **Keynote Presentation**

**State Senator Jeff Golden, Chair of the Senate Environment and Natural Resources Committee, past chair of the Wildfire Response and Restoration Committee and Doug Grafe, Chief of Fire Protection for the Oregon Department of Forestry**

*Broad background on the fires in Oregon and the Western U.S., the fiscal and community impacts, and future outlook*

Senator Golden thanked those who are working in the trenches, mostly unseen. He said it was not easy work and it has been even more difficult in this Covid year. Golden said that what everyone lived through together was powerful and extraordinary, and his heart goes out to those who suffered losses. The losses are unprecedented, with a total across the state of 1.3 million acres. This exceeds \$130 million in wildfire costs.

Doug Grafe presented a series of slides entitled "The Normal Fire Environment: Modeling Large Wildfire Suitability Using Past, Present, and Future Climate Normals," <https://www.semanticscholar.org/paper/The-normal-fire-environment%E2%80%94Modeling-environmental-Davis-Yang/df16ec3637799547200668cdfdf2d5ebf0d7517f> showing an increase in fires per decade for the last 30 years. He said just a few decades ago, there were 6-20 days where we reached peak indices; in comparison, in 2018 there were 60 days.

Senator Golden said we have not kept pace with climate-based reality, and Governor Brown has stated that it's time to change that. She convened her Council on Wildfire Recovery in 2019 and released a report that designates three categories: suppression, community adaptation, and mitigation (including work such as fuel reduction). Golden explained that this "three-legged stool" is how the State has approached fire-related policy, and that mitigation and fuel reduction are the most politically sensitive. The Council's Report became SB 1536, however, he explained that the 2020 session resulted in a walkout that killed thousands of bills. As a result, little significant legislation

was passed, regardless, the effects and benefits of the wildfire bill would not have manifested quickly enough to affect the September 2020 fires. Legislators will now need to pick up where work was left off a year ago.

Senator Golden shared that while the sentiment supporting a protocol of full fire suppression is understandable, we now have a dilemma with no real solution. He said we need to collaborate better and more consistently than we have in the past, and the water system managers need to be part of the conversation as well.

Senator Golden said they are starting to apply a lens of environmental justice, including a priority to include impacted communities at the decision-making table. He emphasized that outreach needs to happen beforehand, and it needs to encompass priorities such as reaching renters, lower-income residents, as well as to be multilingual and multicultural. Golden expressed concern that “Building back better” will only be a slogan if we don’t include resources and funding, and he has worked on a proposal to address that.

During the question and answer, a participant expressed concern about flame retardants. Grafe addressed this by explaining that the use of aerially-applied fire retardants are restricted near most waterways and that pre-planning is critical. He said, “it’s a tool, and you have to use it responsibly”. Identifying and protecting streams and lakes, drinking water intakes and fish are critical components of the pre-planning process.

## **Panel Discussion:**

### **Panelists:**

- **Meghan Montgomery**, Jackson SWCD
- **Jennie Morgan**, Rogue Valley Sewer Services
- **John Speece**, Rogue River Watershed Council
- **Greg Stabach**, Rogue Valley Council of Governments
- **Bill Meyers**, Oregon DEQ
- **Arlo Todd**, Medford Water Commission

### **Q: Can you share one critical action that has already been taken that helped you with your response to the fires?**

John Speece: I’ve been back in the Valley since Fall of 2018. During that time, the Watershed Council has participated in lots of partnerships. Looking through an erosion, restoration, and water quality lens, partnerships that already existed allowed people to get together in immediate meetings online which led to quick decisions on erosion control. We all knew someone who suffered from it. When the fires hit, we had all these people we could count on and trust. As we transition off from the immediate response phase, it will help us in the long term on a watershed level.

Greg Stabach: Being familiar with your partners and what they can do is critical, so you can distribute resources quickly. We were able to take some of our existing programs and build on them. It was valuable having some pieces that worked, and adapting to what we were seeing on the ground.

Bill Meyers: Technologically, we were able to communicate effectively despite Covid because we were ready for Zoom and Teams meetings. I was so impressed by the leadership taken by RVSS and Jackson – to stabilize the greenway, order and install BMPs for storm drains, procure equipment, and order and spread seeds. Those types of action were invaluable.

Meghan Montgomery: Being fairly new to the Valley, it was essential being able to build off of coworkers' knowledge in the virtual networks. You need to have a trusted landowner who had a relationship with our organization before the fire. People aren't used to receiving help from agencies. Having a well-respected forest manager and land manager that could vouch for us as trustworthy – that was really, really critical. And building on the capacity of the larger landowners who are very active in their communities is something we'll be investing in more in the future.

Jennie Morgan: As the stormwater managers, we already have existing stormwater management plans. What helped us with a lot of the work is that we already had mapping for all of the outfalls and infrastructure in the stormwater system. We were able to quickly visit the outfalls and determine needed repairs. Protect every catch basin and every curb inlet – they were already mapped, and we could keep track of where we had been.

Arlo Todd: Our Source Water Monitoring Plan and all the data we've been collecting for years has really provided context for new data that's been coming in. We were already advancing our online monitoring capabilities and were receiving alerts for turbidity spikes. We just needed to ratchet up the frequency to make it more appropriate post-fire.

Clint Nichols: The Penninger Fire on Bear Creek in 2018 was instructive – we noticed the fire behavior and what the vegetation damage was like. Then we observed what came back on its own, how successful seeding was, and how quickly blackberries would come back. How the riparian area was going to respond was very useful for us.

**Q: What could have worked better regarding our collective response to the fires?**

Jennie Morgan: I was looking for direction from DEQ, but this was such a large situation (not just Alameda), and DEQ was scrambling to coordinate and staff a state-wide response; so, I organized a local meeting. Our main point of contact/coordinator changed about three times in the first couple of weeks. We were running as fast as we could, and yet we had to keep doing things over and over again.

John Speece: A lot of us weren't back at work yet, and some of us were still evacuated from the fire – but Jennie's meeting was called quickly. But there were duplicate meetings and overlap, so we lost some time. But I think we all did very well considering. There was some decision making that needed to be done. Having a local response team set up for future disasters would probably help.

Meghan Montgomery: At the district and working with private landowners, having a view toward the County-wide scale and the Rogue River Basin scale, not limiting ourselves to the more urban areas. Working with community leaders there so they know that there are agencies they can come to for support, and we take their context in mind, and they're not forgotten.

Bill Meyers: Building on John's comment: can we create a local response team to convene on future disasters that might be handled through Jackson County emergency management so that we know who the initiating party is? I was not familiar with incident command structure – now I am. Once we got into that structure (10-14 days), it really gained momentum. For those first two weeks, there were many meetings, but it was hard to get going.

John Speece: All of us need to take a step back and summarize and capture this information.

**Q: There's been lots of good conversation on the collaboration that's been set up, but who is missing from the collaboration?**

Bill Meyers: We're bringing in lots of water quality data – on ash, surface water, etc. – what's missing is a dedicated water quality analyst. We meet weekly to talk about the data that's been coming in, but we're missing an analyst.

Arlo Todd: Small drinking water providers. Grants Pass and Medford were positioned for all that monitoring, but some smaller providers were not, because it's very expensive. There's a push now to get some shared water quality stations operating that can help some of the smaller communities. How can we help them be prepared as far as what's coming down the river toward them?

Greg Stabach: Timing and scale are important factors. Longer term – greenway visioning; groups advocating for underserved communities.

Meghan Montgomery: Public land management officials, e.g., BLM or Forest Service. We didn't know who to contact in either of those agencies on what they were doing with private land. There's a checkerboard of land ownership, so coordinating with public land management officials will be really key.

John Speece: Bear Creek Restoration Initiative and others helped prioritize restoration efforts based on social and ecological factors. We'll need them to be more involved with long term planning issues.

Arlo Todd: We have applied for some grants to install online sampling locations for smaller systems. The Medford Water Commission didn't have damaged pipes in our system. Plastic pipes when burned or melted can release benzene and other contaminants into the

water supply. We have all metal piping, so we were lucky from that regard. It will be important to consider the types of piping for private homeowners' systems, as will smaller community water systems.

Clint Nichols: Groups like NRCS and FSA – in our county we have one staff member for both of those agencies, and they were completely overwhelmed. So, there's a bottleneck on getting people through the door. There is still funding on the table, but there needs to be better coordination from the federal partners down in this area.

Bill Meyers: My thought is to develop local contacts for the Jackson County incident command process to enable streamlined communications. It would be coordinated on the County level. I see the need on the ground to be able to feed information up the chain through an incident command system. It would help us through the uncertainty and wobble.

John Speece: We need a series of community meetings over the next year so we can incorporate that vision into any planning process so we can satisfy as many objectives as possible.

Arlo Todd: One positive collaboration was that Little Butte Creek and Bear Creek needed a lot of restoration, and the fires shed light on this.

Greg Stabach: Fires give a reset. Lots of good work and lots of studies to build on. We can refer to those for what it's going to be like after.

## **Breakout Groups**

Participants divided into breakout groups to discuss Rogue Basin Mitigation and Restoration, Monitoring, and Emergency Response. When breakout groups reconvened, John Speece provided a Show-and Tell, "10-Acre Restoration Project in Phoenix." Then the Funding and Resource session commenced (see section below). After the Funding and Resource section, the breakout groups reported out their top critical actions, as follows. Jamboards with more detailed notes from each breakout groups are included in the Appendix.

**Breakout Group Moderators** (see above) and **Craig Harper**, Medford Water Commission, facilitated the groups and the report-out session.

### **Moderators:**

- Tessa Edelen, Oregon DEQ
- Jacquie Fern, Oregon DEQ
- John Speece, Rogue River Watershed Council

- Greg Stabach, Rogue Valley Council of Governments
- Julie Harvey, Oregon DEQ
- Josh Seeds, Oregon DEQ
- Evan Hofeld, OHA
- Dan Sobota, Oregon DEQ
- Aaron Borisenko, Oregon DEQ

#### **Mitigation and Restoration:**

- **Group A:** Community Involvement in the future visioning for the Greenway at Bear Creek.
- **Group B:** Putting together and distributing an Action Checklist.
- **Group C:** Stakeholders' concerns are different across the Basin, and education and outreach should be customized for everyone.
- **Group D:** Have local partners develop a database/resource document or response structure, and include county emergency managers. All partners must be able to modify database or resources.

#### **Monitoring and Emergency Response**

- **Monitoring Group A:** Hardened and redundant online continuous monitoring stations to support immediate and ongoing data and information needs for all water providers and others. Identify existing stations and add parameters.
- **Monitoring Group B:** Clearly defined lead agency for coordinating data collection, dissemination, and analyses.
- **Emergency Response Group:** Rogue Partners develop and implement a local Emergency Response Plan. Plan should include communications, partners, strategy for collecting and sharing data, and practice exercises.
- **Main Room Group:** Getting systems access to adequate continual monitoring equipment.

#### **Funding and Resources**

##### **Julie Harvey, Oregon DEQ Drinking Water Protection Program Coordinator**

##### *Funding for drinking water protection projects*

Julie provided information on a variety of grants and loans that are available to water systems and/or partners to reduce contaminant risks in drinking water source areas. This includes OHA grants for up to \$30K per water system, and low interest loans for up to \$100K that can be used for land acquisition or incentive-based protections. She also shared details about the Drinking Water Providers Partnership grants,

which can provide federal and state funding for projects within drinking water source areas that benefit both drinking water quality and aquatic habitat, and have a federal nexus. Julie shared project success stories, as well additional funding sources such as NRCS's National Water Quality Initiative grants (for agricultural lands), Clean Water State Revolving Fund loans, DEQ Supplemental Environmental Projects, and DEQ Nonpoint Source 319 grants.

**Meghan Montgomery and Clint Nichols, Jackson SWCD**

- *Technical assistance and funding SWCD can provide; available local resources*

Meghan and Clint talked about technical assistance services Jackson SWCD offers. Services include:

- Free on-site consultations (there was a significant bottleneck for sourcing restoration materials like straw, seed, etc.).
- Forestry and riparian technical assistance: Hazard tree removal, slash treatment, invasive species treatment, riparian fencing, riparian replanting, wildlife habitat restoration.
- For more urban environments, they provide design of stormwater structures, raingardens, rain harvest systems, and xeriscaping.
- Monitoring, including grab-sample collection, flow data collection, and data analysis.
- Education, including field tours, adult and youth field trips, Zoom classes, signage and handouts. They've provided tours for 300 school-aged kids in the Penninger Fire restoration area.
- Funding Resources
  - Conservation Assistance Program – a small grant program – this year because of fires, they converted the funds to free supplies for landowners (seed and straw).
  - Fiscal year starts in July – they are hoping funding will be renewed so they can focus on post-fire activities/projects.
  - They have applied for \$75K from OWEB for South Obenchain restoration – primarily hazard tree and slash treatment, riparian herbicide treatment for invasive species, and riparian fencing.
  - FSA: Livestock and crop assistance programs, Emergency Forest Restoration Program (EFRP), low-interest loans.
  - NRCS: Western Oregon Wildfire Emergency Stabilization – the deadline has passed, but future funding is possible.
  - The local Farm Service Agency is the first stop for landowners. If you are working with a landowner, have them start there.

A participant posted a question in the chat: Does each county have a SWCD that is offering similar services and funding for landowners in other counties affected by wildfires? I see an opportunity in advertising their assistance so that other counties can consider funding similar efforts for their local SWCDs.

Clint responded that SWCDs are one of the few groups, along with watershed councils, that have access to grant applications from OWEB, but staffing is a challenge.

He said that Jackson County is fairly urbanized so there is more tax base, but it is tougher in other communities. Meghan added that outside of the Basin, it's important to identify what the "first stop" entity is in the local area. (For example, In Jackson County it is SWCD, but that's not the case everywhere).

### **Craig Harper: Closing Words**

Craig shared with participants that a year ago, when EPA first offered funding for this workshop, the focus was on CyanoHABs. But then the September fires hit, and our chief concerns shifted. DEQ and EPA were fully supportive of our goal of focusing the event on wildfire impacts and drinking water protection. Craig expressed his appreciation that the workshop was able to meet the objectives established by the planning team to address the wildfire focus.

Craig said that even more important than meeting the workshop objectives, the group has identified priority actions. He knows that we have a real challenge ahead, and now must ask the question, "How do we ensure we have clean sources of drinking water in this era of frequent wildfires?"

Craig extended a warm thank you to partners in the Rogue Basin, DEQ and EPA, the speakers, the planning team, "and all of you who took the time to attend the workshop".

## APPENDIX

### Breakout Group Jamboards

#### Mitigation and Restoration, Group A

## Mitigation and Restoration - Opportunities

Identify the top 3 critical actions to address needs, gaps, or short comings related to mitigation and restoration that could improve preparedness before a future wildfire. Consider what steps partners in the Rogue Basin can take now to improve coordination, communication, and response activities related to wildfire impacts on drinking water supplies.

To improve preparedness before a wildfire, the Rogue Basin needs...

Critical Action: Development of a response plan that is based upon state/federal examples. Agreed upon at the local level.

To improve preparedness before a wildfire partners in the Rogue Basin can...

Critical Action: Community involvement in the future visioning for the greenway and Bear Creek. There's inertia behind this - several funding/partner organizations. Gov't agencies/community

To improve preparedness before a wildfire, the Rogue Basin can fill a critical gap by...

Action Plan: Hazard mitigation planning process. County could apply for the work to be done.

Once you have a few critical actions identified, discuss and pick one to prioritize. Consider which will have the highest impact, is the most attainable, or has leadership and support behind it already. Put this star on your selected action.

## Mitigation and Restoration, Group B

### Mitigation and Restoration - Opportunities

Identify the top 3 critical actions to address needs, gaps, or short comings related to mitigation and restoration that could improve preparedness before a future wildfire. Consider what steps partners in the Rogue Basin can take now to improve coordination, communication, and response activities related to wildfire impacts on drinking water supplies.

To improve preparedness before a wildfire, the Rogue Basin needs...

Incident action checklist for distribution

Prepare for disasters and emergencies beyond wildfires

Resources

To improve preparedness before a wildfire partners in the Rogue Basin can...

Develop a Local Emergency Response Team for all sectors (include focus on water providers/resource professionals)

Continue to coordinate.

SC  
LE  
Identify roles, expertise, resources, and jurisdictions/authority of partners

resources

Improve access to data (online)

EPA trainings and other trainings.

To improve preparedness before a wildfire, the Rogue Basin can fill a critical gap by...

Creating a broader ICS focused on water. RDWP has funding by OHA and in process for the ICS and ERP to move the process forward.

Developing an Emergency Response Plan

Once you have a few critical actions identified, discuss and pick one to prioritize. Consider which will have the highest impact, is the most attainable, or has leadership and support behind it already. Put this star on your selected action.



- Incident action checklist
- Develop a Local Emergency Response Team
- Work on the Emergency Response Plan

## Mitigation and Restoration, Group C

# Mitigation and Restoration - Opportunities

Identify the top 3 critical actions to address needs, gaps, or shortcomings related to mitigation and restoration that could improve preparedness before a future wildfire. Consider what steps partners in the Rogue Basin can take now to improve coordination, communication, and response activities related to wildfire impacts on drinking water supplies.

The image shows three colored boxes with text. The first box is light blue and contains a pink box with text. The second box is light orange and contains a pink box with text. The third box is light green and contains several overlapping boxes with text, including a prominent green box with a gold star.

**To improve preparedness before a wildfire, the Rogue Basin needs...**

- Remove vegetation from the vicinity of the point of diversion, know your watershed (physically and in terms of landowners and neighbors)

**To improve preparedness before a wildfire partners in the Rogue Basin can...**

- Maintaining point of diversion and fish screen

**To improve preparedness before a wildfire, the Rogue Basin can fill a critical gap by...**

- Locate all the diversions
- Clarify what one can do in riparian
- Gold Star: Stakeholders' concerns are different across the basin and education and outreach should be adjusted for everyone
- Increase outreach and education to landowners - refer them to SWCDs and Extension for assistance information
- Most concerns in County than in County. Domestic use, diversions are at least. are different - chemical water... olders feel left out, feel like concerns

Once you have a few critical actions identified, discuss and pick one to prioritize. Consider which will have the highest impact, is the most attainable, or has leadership and support behind it already. Put this star on your selected action.

## Mitigation and Restoration, Group D

### Mitigation and Restoration - Opportunities

Identify the top 3 critical actions to address needs, gaps, or short comings related to mitigation and restoration that could improve preparedness before a future wildfire. Consider what steps partners in the Rogue Basin can take now to improve coordination, communication, and response activities related to wildfire impacts on drinking water supplies.

To improve preparedness before a wildfire, the Rogue Basin needs...

**Response structure (local ICS) for future emergencies (knowing where resources are, key staff, etc.). County or city plans need more collaboration and to address current and future water quality issues.**

To improve preparedness before a wildfire partners in the Rogue Basin can

**Have local partners develop a database/resource document or response structure and include county emergency managers. All partners must be able to modify database or resources.**

To improve preparedness before a wildfire, the Rogue Basin can fill a critical gap by...

**Planning a local response structure and database for resources and stakeholders**

Once you have a few critical actions identified, discuss and pick one to prioritize. Consider which will have the highest impact, is the most attainable, or has leadership and support behind it already. Put this star on your selected action.



## Monitoring Group A

### Monitoring - Opportunities

Identify the top 3 critical actions to address needs, gaps, or shortcomings related to monitoring that could improve preparedness before a future wildfire. Consider what steps partners in the Rogue Basin can take now to improve coordination, communication, and response activities related to wildfire impacts on drinking water supplies.

To improve preparedness before a wildfire, the Rogue Basin needs...

More data analysis. Conduct a comprehensive post wildfire study to evaluate toxics and other parameters coming off the burn sites to inform mitigation strategies for controlling these chemicals before they

To improve preparedness before a wildfire partners in the Rogue Basin can...

Funding for local organizations to coordinate and conduct monitoring needed at a local scale.

To improve preparedness before a wildfire, the Rogue Basin can fill a critical gap by...

Hardened and redundant online continuous monitoring stations to support immediate and ongoing data and information needs for all water providers and others. Identify existing stations and add parameters.



Question: Are there key locations on forest lands that would be beneficial to establish monitoring stations? Where could the forest service help.

Once you have a few critical actions identified, discuss and prioritize. Consider which will have the highest impact, is the most attainable, and is the most behind it already. Put this star on your selected action.

- Fires destroyed a lot of monitoring stations that would have been collecting data that is needed for decision making.

## Monitoring - Opportunities

Identify the top 3 critical actions to address needs, gaps, or short comings related to monitoring that could improve preparedness before a future wildfire. Consider what steps partners in the Rogue Basin can take now to improve coordination, communication, and response activities related to wildfire impacts on drinking water supplies.



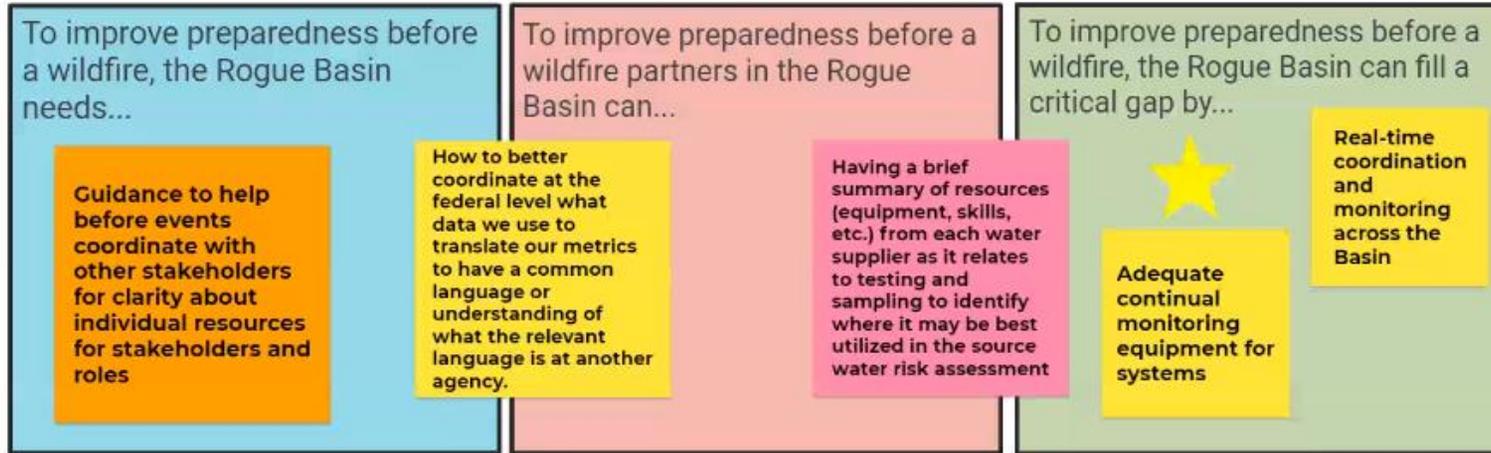
Once you have a few critical actions identified, discuss and pick one to prioritize. Consider which will have the highest impact, is the most attainable, or has leadership and support behind it already. Put this star on your selected action.

- Clearly identify a lead agency for coordinating data collection, dissemination, and analyses.
  - Mock scenarios to prepare for anticipated wildfires
  - Analysis of past data to indicate baseline and trends.

## Monitoring Group C

# Monitoring - Opportunities

Identify the top 3 critical actions to address needs, gaps, or shortcomings related to emergency response that could improve preparedness before a future wildfire. Consider what steps partners in the Rogue Basin can take now to improve coordination, communication, and response activities related to wildfire impacts on drinking water supplies.



Once you have a few critical actions identified, discuss and pick one to prioritize. Consider which will have the highest impact, is the most attainable, or has leadership and support behind it already. Put this star on your selected action.

## Emergency Response Breakout Group

### Emergency Response - Opportunities

Rectangular Snip

Identify the top 3 critical actions to address needs, gaps, or short comings related to emergency response that could improve preparedness before a future wildfire. Consider what steps partners in the Rogue Basin can take now to improve coordination, communication, and response activities related to wildfire impacts on drinking water supplies.

To improve preparedness before a wildfire, the Rogue Basin needs...

Develop and Implement Local Emergency Planning Committee (LEPC). Make sure drinking water included

Communication, Training, Monitoring and Data Analysis and Sharing. Suggest Regional or State Clearinghouse for data and GIS layers.

To improve preparedness before a wildfire partners in the Rogue Basin can...

Identification of the partners in the basin and get to know each other - suggest doing this through development of geographic response plan and PRACTICE exercises.

Develop a detailed plan to respond to a variety of emergencies. Includes a communications plan

To improve preparedness before a wildfire, the Rogue Basin can fill a critical gap by...



Need resources for Emergency Response Planning - political will (Individual agencies and communities need to dedicate staff time and prioritize planning)

Rogue Partners develop/implement Local Emer. Resp. Plan (through LEPC?) that includes Comms Plan, Partner ID, strategy for collecting & sharing data (esp WQ) and Practice exercises.

Once you have a few critical actions identified, discuss and pick one to prioritize. Consider which will have the highest impact, is the most attainable, or has leadership and support behind it already. Put this star on your selected action.